Paper Chromatography

Objective:

To separate the different colours that are in coloured pens. Chromatography is a common chemical method for separating substances. There are many different types of chromatography such as paper, gas, liquid, and thin layer. In paper chromatography the sample is concentrated in a small spot near the bottom of the paper. The bottom edge of the paper is placed in a container containing the solvent. As the solvent rises up the paper it dissolves components of the sample and carries them up with it. The components, having different chemical properties, will not all travel the same distance with the solvent. As a result they become separated. For example, a chromatogram of a black ink should separate out the colours of blue, green, yellow, and red.

Materials:

- tall jar
- ruler
- clothes peg
- pencil
- felt tip pens or food colouring (must be water soluble)
- white paper (coffee filters; don't use paper towels)
- toothpicks if using food colouring

Procedure:

1. Cut strips of paper (about 3 cm wide and taller than the jar).
2. Draw a line about 2 cm from the bottom of the strip
3. In the middle of the line make a small dot with the pen (dark colours work best); wait until it is dry and add another dot (repeat once).
4. Add water to the jar (~ 1.5 cm) (don't make the water higher than the line on the paper).
5. Place the paper in the jar so that it is not touching the sides.
6. Bend the paper over the side of the jar or clip with a clothes peg so that it doesn't move.
7. Watch colours separate.